

, page 8, line 16, through page 9, line 5. A typographical error in Claim 18 has also been corrected.

No new matter has been added by the above amendment. With entry thereof, Claims 2, 4-6, 9-12, and 14-29 will be pending in the application.

REMARKS

The present invention relates to a flexible pipe having high dimensional stability, good recovery performance and good resistance to fluid media.

The discovery of the present invention is an improved molding composition, which is especially useful for the preparation of the interior walls of flexible plastic pipes, which not only exhibit high dimensional stability and good recovery performance, but also good resistance to fluid media, particularly alcoholic media.

The embodiment of the invention as claimed in Claim 14 is directed to a molding composition comprising the following components:

- I. from 40 to 80 parts by weight of a polyamide selected from the group consisting of PA 612, PA 1012, PA 11, PA 12 and PA 1212, and
- II. from 60 to 20 parts by weight of a flexible polymer whose main chains consist of carbon atoms, wherein the amounts of I and II in parts by weight total 100, and wherein the composition when in the form of granules comprises not more than 2% by weight of extractables, measured by extracting the granules with hot 100 percent ethanol under reflux conditions, the tensile modulus of elasticity of the composition ranging from 200 to 950 N/mm².

In another embodiment of the invention as claimed in Claim 18, a pipe is claimed whose interior wall structural component is comprised of:

- I. from 40 to 80 parts by weight of at least one polyamide selected from the group consisting of PA 46, PA 66, PA 610, PA 1010, PA 612, PA 1012, PA 11, PA 12, PA 1212, and PA 6,3-T, and
- II. from 60 to 20 parts by weight of a flexible polymer whose main chain consist of carbon atoms,

where the amounts of I and II in parts by weight total 100, and wherein the interior wall component is obtained from a molding composition, which composition when in the form of granules, comprises not more than 2% by weight of extractables, measured by extracting the granules with hot 100% ethanol under reflux conditions, the pipe being useful for the piping of aqueous, aqueous-alcoholic or purely alcoholic liquids.

The rejection of Claims 14-16 under 35 U.S.C. §103(a) as unpatentable over U.S. 4,554,320 (Reimann et al), in view of U.S. No. 5,948,503 (Yamamoto et al), is respectfully traversed. Reimann et al disclose nylon molding materials having a high impact strength by combining with the nylon, a non-crosslinked copolymer containing three or more components comprising ethylene, C₂-C₈ alkyl (meth)acrylate, and a monomer possessing an acidic functional group or a latent acidic functional group (column 2, lines 45-62). While Reimann et al does discuss flexibility with regard to prior art nylon materials, nothing is disclosed regarding flexibility with regard to the invention of Reimann et al, and indeed, Reimann et al appear to be essentially exclusively concerned with the impact strength of their product. Yamamoto et al do not remedy the deficiencies of Reimann et al. The Examiner relies on Yamamoto et al for a disclosure of a tensile modulus of elasticity which the Examiner asserts is within the terms of present Claim 14 (column 17, lines 55-60). The tensile modulus of elasticity disclosed in Yamamoto et al relates to a fine fiber-reinforced thermoplastic elastomer composition prepared by mixing an ethylene-propylene copolymer

as an elastic component, a polypropylene resin modified by a particular silane and peroxy compound as a polyolefin component, and nylon 6 resin modified with a particular silane as a polyamide component (column 16, line 61ff). The Examiner relies on this disclosure of Yamamoto et al as demonstrating that the above-discussed nylon molding material of Reimann et al inherently has the tensile modulus of elasticity disclosed in Yamamoto et al. This finding is clearly incorrect, since the particular materials used by Yamamoto et al are different from the materials in Reimann et al. Neither the elastic component nor the polyolefin component of Yamamoto et al overlaps with the non-crosslinked copolymer of Reimann et al.

In the Office Action, the Examiner responds that Yamamoto et al disclose a tensile modulus of elasticity of 361 to 453 N/mm² for a thermoplastic elastomer composition of 30 to 500 parts by weight of a particular polyolefin component and 10 to 500 parts by weight of a particular polyamide. However, the Examiner has ignored the fact that this tensile modulus of elasticity is for a composition that contains additional components other than those listed by the Examiner. The Examiner's rationale, as stated in the previous Office Action, is that Yamamoto et al shows that the composition of Reimann et al inherently has a tensile modulus of elasticity of 361 to 453 N/mm². But Yamamoto et al discloses nothing with regard to the tensile modulus of elasticity of Reimann et al, because its composition is different from Reimann et al's. Rather, Yamamoto et al reflects the tensile modulus of elasticity of **only** Yamamoto et al. For example, Yamamoto et al require fiber reinforcement and other components not employed in Reimann et al. Is the Examiner suggesting that these additional components do not affect the tensile modulus of elasticity?

For all of the above reasons, it is respectfully requested that this rejection be withdrawn.

The rejections under 35 U.S.C. §103(a) of Claims 4-7, 9-12, 17-22 and 24-28 as unpatentable over U.S. 6,025,055 (Bouilloux et al), and of Claim 23 over Bouilloux et al in view of U.S. 4,755,552 (Jadamus et al), are respectfully traversed.

Bouilloux et al disclose compositions suitable for extrusion blow molding to form, e.g., flexible pipes, comprising a matrix of an alloy of a polyamide and a polymer having polyamide blocks and polyether blocks, dispersed in which matrix is a cross-linked phase, the composition having a particular melt strength and flexural modulus (column 2, lines 44-50). Bouilloux et al disclose another embodiment of an extrusion blow-molded article comprising the above composition and another part which may be a mixture of a polyamide and a polyolefin, being welded to one another at their contact surface (column 8, lines 35-42). The Examiner appears to be relying on the listing of VLDPE in Table 1 at columns 13-14 of Bouilloux et al.

In reply, the VLDPE is used in only Comparative Examples 2-4. These examples are all disclosed as being inferior (column 10, line 7, through column 11, line 8). At any rate, these comparative examples employ PA 6, not included as an applicable polyamide component herein. Nor more fundamentally is the presently-claimed invention drawn to the chemical structure of a matrix of a polyamide/polyamide-polyether alloy with dispersed cross-linked phase of Bouilloux et al.

Jadamus et al does not remedy the above-discussed deficiencies of Bouilloux et al. Jadamus et al is concerned with impact-resistant polyamide molding compounds, wherein a polyamide is combined with a polyalkenamer. Contrary to the finding by the Examiner, Jadamus et al do not disclose or suggest any equivalence between their polyalkenamers and, for example, polyethylene, let alone that they are equivalent in terms of flexibility. Indeed, Jadamus et al disclose nothing with regard to flexibility. Clearly, one skilled in the art would

not combine the references without the present disclosure as a guide. Even if one skilled in the art did combine these references, the result would still not be the presently-claimed invention since, as discussed above, the present invention does not involve the matrix of a particular alloy having a cross-linked phase therein as disclosed by Bouilloux et al.

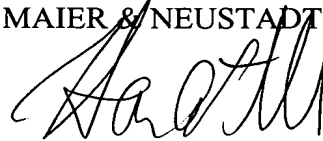
For all the above reasons, it is respectfully requested that these rejections be withdrawn.

Applicants respectfully traverse the finality of the Office Action. According to MPEP §706.07(a), a second or any subsequent action on the merits in any application will not be made Final if it includes a rejection on newly-cited art of any claim not amended by Applicants in spite of the fact that other claims may have been amended to require newly-cited art. While Claim 18 was amended by the most recent amendment, nevertheless, the amendment was in essence formal in nature. Clearly, the amendment of Claim 18 did **not** necessitate the new rejection over Bouilloux et al., and thus it was improper to reject Claim 18 thereover and to make the Office Action Final. Accordingly, Applicants respectfully request that the Examiner withdraw the finality of the Office Action and enter this amendment as a matter of right.

All of the presently-pending claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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Marked-Up Copy
Serial No: 09/442,756
Amendment Filed on:
HEREWITH

IN THE CLAIMS

--7. (Cancelled)

14. (Twice amended) A molding composition which comprises the following constituents:

- I. from 40 to 80 parts by weight of at least one polyamide selected from the group consisting of PA 612, PA 1012, PA 11, PA 12 and PA 1212, and
- II. from 60 to 20 parts by weight of a flexible polymer whose main chain consists of carbon atoms, wherein the amounts of I and II in parts by weight total 100, and wherein the composition when in the form of granules comprises not more than 2% by weight of extractables, measured by extracting the granules with hot 100 percent ethanol under reflux conditions, the tensile modulus of elasticity of the composition ranging from 200 to 950 N/mm².

18. (Twice amended) A pipe whose interior wall structural component is comprised of:

- I. from 40 to 80 parts by weight of at least one polyamide selected from the group consisting of PA 46, PA 66, PA 610, PA 1010, PA 612, PA 1012, PA 11, PA 12, PA 1212, and PA 6,3-T, and
- II. from 60 to 20 parts by weight of a flexible polymer whose main chain consists of carbon atoms,

where the amounts of I and II in parts by weight total 100, and wherein the interior wall component is obtained from a molding composition, which composition when in the form of granules, comprises not more than 2% by weight of extractables, measured by extracting the granules with hot [!00] 100% ethanol under reflux conditions, the pipe being useful for the piping of aqueous, aqueous-alcoholic or purely alcoholic liquids.--